Nunavut Bureau of Statistics

Guide to the Labour Force Survey in Nunavut's 10 largest communities

– 2007 –

On August 4, 2006, for the first time, Statistics Canada released data collected through the pilot Labour Force Survey in Nunavut. The data series start in January 2004 and new data are released every month. This reference document was created to help data users better understand the data collected by the survey so they can appropriately interpret labour market movements.

A glossary of the main concepts used in the Labour Force Survey is provided at the end of the document.

Labour Force Survey Overview

- The Labour Force Survey (LFS) is a household survey carried out monthly (since 1952) by Statistics Canada.
- The LFS is the source of the official measure of unemployment in Canada and provides information on major labour market trends.
- The objective of the LFS is to divide the working-age population into three mutually exclusive classifications – employed, unemployed, and not in the labour force – and to provide descriptive and explanatory data on each of these categories.
- The LFS is a major source of information on the personal characteristics of the working-age population, including age, sex, educational attainment and Aboriginal identity[1].

Labour Force Survey in the territories

- The LFS has been conducted as a pilot survey since 1991 in the Yukon and since late 2000 in the Northwest Territories and Nunavut. Given the special difficulties in collecting data in northern areas, data quality determines the point at which estimates from the survey may be released. In Nunavut this is determined to be January 2004.
- Since the sample design and the rotation pattern are different from those in the 10 provinces, estimates for the territories are not yet included with the estimates for the 10 provinces, but rather they are calculated and reported separately as a part of each of the pilot projects.
- Despite the methodological differences, the LFS data for the territories are comparable to the LFS estimates produced for the 10 provinces (when the data series are presented in a similar format, such as a 3 month moving average unadjusted for seasonality). The same questionnaire is used all across the country.
- Data for the three territories are currently available through Statistics Canada or through the respective territorial statistics bureaus.

[1] Since January 2007, the questions on Aboriginal identity are asked across the country. In the past, the questions were asked only in the territories, the Prairie provinces and British Columbia.

Survey methodology in Nunavut

- The estimates from the LFS in Nunavut are representative of the civilian, non-institutionalised population 15 years of age or older whose usual place of residence is one of the 10 largest communities in Nunavut (which are referred to as the "target population"). Therefore, the following groups of peoples are excluded from the survey: 1) Nunavut residents living outside the 10 largest communities, 2) people who work in Nunavut but whose usual place of residence is outside the territory, 3) people living in institutions (*e.g.*, penal institutions, hospitals, nursing homes) for six months or longer, and 4) full-time members of the Canadian Armed Forces.

- The current sample is designed to represent about 70% of all Nunavut residents 15 years of age and over. Therefore, the data are not representative of the working-age population for the whole territory (see the section entitled "***Additional information on the survey population coverage***"). Statistics Canada, in collaboration with the Nunavut Bureau of Statistics, is currently working on increasing the survey coverage in Nunavut to bring it on par with the other two territories (about 96% in the Northwest Territories and about 83% in the Yukon).

- The LFS in Nunavut follows a quarterly sampling design. Each three consecutive months have three independent and mutually exclusive monthly samples. The data from any three consecutive months need to be combined to get a representative sample of the target population.

- The data are collected from a sample of approximately 450 households per three-month consecutive period, involving about 1,020 persons 15 years of age and over. Data collection is carried out each month during the week following the LFS reference week (normally the week containing the 15th day of the month).

- The LFS uses a stratified area frame to draw its sample in order to maximize the reliability of the estimates while keeping collection costs at a minimum. The 10 largest communities in Nunavut have been partitioned in six strata. Among the four strata containing only one community, the dwellings are selected directly. However, for the other two strata, a community needs to be randomly selected first and then a sample of dwellings within that community is chosen. In total, six communities are selected for the sample. The section entitled "***Additional information on the survey sample***" provides more information on the sample design of the survey.

- The sample is spread amongst eight rotating panels. A household remains in the sample for two years for a total of eight interviews. If a household was first selected for the month of January 2007, it will be interviewed again every three months (*e.g.*, April, July, October 2007, January, April, July and October 2008). After the eighth interview, the household is replaced by another household from the same community or from another community in the same stratum. Each quarter, one eighth of the sampled households are experiencing their first interview.

- Survey operations are conducted by Statistics Canada staff. First contact is usually done in person (interviewers are flown in from the South) and most interviews are done over the phone where possible. Proxy responses are often used. That is, a member of the household may answer the questions for the other members of the same household. The Nunavut Bureau of Statistics will work with Statistics Canada to determine the feasibility of hiring local interviewers.

- Once the data are collected and edited, the sample data are weighted to represent the target population. Weights are calculated based on the sample design and are then adjusted for non-response and coverage errors (for eight age-sex groups and for the proportion of Inuit).

Data quality

- Information on survey operations indicates a high response rate for the monthly labour force survey in Nunavut as well as for the rest of the country. The average response rate in Nunavut was 94.2% in 2004, 91.6% in 2005 and 93.4% in 2006. These response rates are similar to those for the 10 provinces combined and for the other two territories.

- The vacancy and the slippage rates tend to be higher in the territories than for the rest of the country. In Nunavut, the average vacancy rate was 14.0% in 2004, 15.2% in 2005 and 15.3% in 2006. On average, the slippage rate[2] in the territory was 15.8% in 2004, 16.5% in 2005 and 23.2% in 2006. For the 10 provinces combined together in 2006, the vacancy rate was 11.3% and the slippage rate was 9.3%.

- Sampling errors calculated for the survey should be considered when statistics from the monthly labour force are being used. The standard errors and coefficients of variation for the labour force estimates (annual and 3 month moving average) are as follows:

Table 1: Standard errors and coefficients of variation (CVs) for labour force characteristics, annual average and 3 month moving average (3MMA) estimates, Nunavut – 10 largest communities, 2006

	2006 annual average			3 month moving average		
	Estimates	Standard errors	CVs (%)	Estimates (average of all 3MMAs in 2006)	Standard errors	CVs (%)
Population 15 years and over	13,800	0	0.0	13,800	0	0.0
Labour force	9,100	227	2.5	9,000	325	3.6
Employment	8,200	227	2.8	8,100	335	4.1
Unemployment	900	100	10.7	900	127	14.1
Not in labour force	4,700	227	4.8	4,800	325	6.8
Participation rate (%)	65.9	1.6	2.5	65.4	2.4	3.6
Employment rate (%)	59.1	1.6	2.8	58.6	2.4	4.1
Unemployment rate (%)	10.3	1.1	10.4	10.4	1.3	12.9

Source: Statistics Canada, Household Survey Methods Division, Labour Force Survey

Statistics Canada considers any survey estimate with a coefficient of variation (CV) less than or equal 16.5% as reliable, and publishable without cautionary notes. However, a CV over 33.3% is considered too unreliable to be released. If a CV is between 16.5% and 33.3%, the data are potentially useful for some purposes but should be accompanied by a warning to users regarding their accuracy.

- Another source of error in surveys is referred to as non-sampling error. These errors result from incorrect answers being given to questions, data entry errors, *etc*. Surveys are designed to help minimize such errors. Generally, the effect of such errors is unknown.

---

[2] The annual average slippage rate was calculated by averaging the monthly slippage rates for the 12 months of the year. The annual response and vacancy rates were calculated by averaging both numerators and denominators before calculating the rate.

Survey results

- Results for the territories are reported based on 3 month moving averages (3MMA) to respect the sampling design and to obtain reasonable sampling errors. This means that data reported for July, actually represent survey collection in May, June and July. This technique is also used to report sub-provincial LFS results in southern Canada in order to smooth out extreme variations in the data and allow simpler trend analysis.

- All counts from the monthly labour force survey are rounded to the nearest 100, but the Nunavut's rates are based on the unrounded data. Due to the rounding some components may not sum to the total.

- Rounded estimates of less than 200 are suppressed for confidentiality and reliability reasons. Therefore, any estimates with a value of 149 or less are indicated as "X".

- Since the data are not seasonally adjusted (at least five years of data are needed to calculate a seasonal pattern in a series), the month-to-month changes should be used with some caution since some of the changes may be due to seasonal variations (*e.g.*, employment tends to increase in the summer months). It is recommended to compare a 3MMA estimate with the same three-month period in the preceding year. For example, comparing the 3MMA ending in March 2007 with the 3MMA ending in March 2006.

Employment in LFS

- The concepts of employment and unemployment are derived from the theory of the supply of labour as a factor of production (defined as those goods and services included in the System of National Accounts).

- The concept of "work" includes any work for pay or profit, that is, paid work in the context of an employer-employee relationship, or self-employment. Work for in-kind trading activity is included.

- Unpaid housework, volunteer work, traditional activities for own consumption are not counted as work by the survey, although these activities need not differ from paid work, either in purpose or in the nature of the tasks completed.

- The concepts and definitions of employment and unemployment adopted by the survey are based on those endorsed by the International Labour Organisation.

Additional information on the survey population coverage

Statistics Canada, in cooperation with the Nunavut Bureau of Statistics, started collection of the monthly LFS in Nunavut as a pilot project in 2000. When first piloted in Nunavut in the late 2000, the Labour Force Survey was covering about 90% of the territory's population. A total of 19 communities were covered by the survey and the sample contained a random selection of 10 of these 19 communities. Monthly interviews to collect the data were done by interviewers hired locally. However, low response rates in a number of communities (especially the smaller ones) and staff attrition prevented the regular collection of reliable and timely data. Statistics Canada modified its sampling strategy and its data collection methods in mid-2002 and since then, the response rates improved greatly (similar to the national level) and the data are collected on a consistent basis.

With the modified sampling strategy, the Labour Force Survey covers a much smaller share of the population in Nunavut (about 70% of the working-age population) compared to the other territories and provinces, and therefore, the data for the 10 largest communities are not representative of the territory as a whole.

However, Statistics Canada and the Nunavut Bureau of Statistics think that the data for the 10 largest communities are still valuable for monitoring labour market trends in Nunavut. Adding the smaller communities to the survey coverage would likely not significantly change the overall results obtained by the LFS. Using 2001 Census data, the following table compares the main labour force indicators for Nunavut as a whole, for the 10 largest communities (*i.e.*, the target population covered by the LFS) and for the 16 communities excluded from the survey.

Table 2: Comparison of main labour force indicators for selected geographic groupings, 2001 Census data

	Nunavut	**10 largest communities** (target population)	**16 smallest communities excluded**
Population 15 years and over	16,680	11,665	4,945
Labour force	11,355	8,200	3,070
Employment	9,380	6,865	2,440
Unemployment	1,975	1,330	640
Not in labour force	5,325	3,460	1,870
Participation rate (%)	68.1	70.3	62.1
Employment rate (%)	56.2	58.9	49.3
Unemployment rate (%)	17.4	16.2	20.8
Inuit proportion among the population 15+ (%)	79.3	74.7	91.1

Source: Statistics Canada, 2001 Census

The 2001 Census data for the territory as a whole, for the 10 largest communities and for the 16 smallest communities show that the estimates calculated for the 10 largest communities give a portrait of the labour force that is closer to the Nunavut data than the smallest communities combined together. These 10 largest communities contain 70% of the territory's working-age population and therefore have a greater impact on the territory's statistics. Although we are working to improve the coverage of the LFS in Nunavut, adding smaller communities to the sample design would likely not significantly change the data already produced by the LFS, even if their labour market situation is quite different.

However, the data users should be aware that the labour force data for the 10 largest Nunavut communities seem to give a slightly more positive picture of the territory's labour market than if we were to look at the data for all the communities. When comparing the data between the territory as a whole and the 10 largest communities, one can observe that the participation and the employment rates for the 10 largest communities are slightly higher than the ones for the whole territory. As for the unemployment rate, it was somewhat lower for the 10 largest Nunavut communities than for the whole territory.

Statistics Canada is currently working with the Nunavut Bureau of Statistics to increase the survey coverage of the LFS in Nunavut back to its original design, when about 90% of the working-age population in the territory was covered by the survey. With the successful data collection over the last few years as well as greater efficiencies in general operations realised during that period, the time came to re-examine the original design.

When exploring ways to improve the survey coverage, one must take into account the following points: 1) respondent burden, especially in smaller communities where a certain critical mass or a minimum number of households (*e.g.*, around 60) must be included in the sample; 2) cost of collecting the data; 3) confidentiality of the data; 4) comparability of the data; and 5) sustainability of the methodology in the long term to avoid introducing breaks in the data series as the LFS gets more robust with a longer term view.

Additional information on the survey sample

As mentioned earlier in the document, the 10 largest communities in Nunavut are divided into six strata where one community per stratum is chosen in the sample. In order to sample communities from each of the main three regions (Baffin, Keewatin and Kitikmeot), there are two strata in each of the regions.

Baffin region:		**Keewatin region**:		**Kitikmeot region**:
Stratum 1:	Iqaluit	Stratum 3:	Rankin Inlet	Stratum 5: Cambridge Bay
Stratum 2:	Cape Dorset, **or** Pangnirtung, **or** Igloolik **or** Pond Inlet	Stratum 4:	Baker Lake **or** Arviat	Stratum 6: Kugluktuk

In each quarterly sample, there are 6 communities selected, and within each of those, a systematic sample of dwellings with a random starting point is taken. The minimum targeted quarterly sample size in each stratum is 60 households, with the exception of stratum 1 (Iqaluit) where at least 120 households are sampled. Therefore, the quarterly sample size is a minimum of 420 households. Within each selected household, the LFS information is obtained for all civilian members 15 years of age or older. The quarterly sample is weighted to be representative of the 10 communities, but not for the whole territory.

Four strata contain only one community, which means that a sample of households from each of these four communities is always selected. In strata 2 and 4, the sample is done in two stages. First, one community is randomly selected and second, a systematic sample of households with a random starting point in that community is taken. In order to have valid and reliable data, each stratum should contain communities that have similar characteristics. The two following tables present the main labour force indicators for the four communities included in stratum 2 and for the two communities included in stratum 4.

Table 3: Comparison of main labour force indicators amongst the communities included in stratum 2, 2001 Census data

	Cape Dorset	**Pangnirtung**	**Igloolik**	**Pond Inlet**
Population 15 years and over	710	795	720	720
Labour force	490	530	405	415
Employment	375	405	290	315
Unemployment	120	120	115	100
Not in labour force	220	270	320	305
Participation rate (%)	69.0	66.7	56.2	57.6
Employment rate (%)	52.8	50.9	40.3	43.8
Unemployment rate (%)	24.5	22.6	28.4	24.1
Inuit proportion among the population 15+ (%)	90.1	91.8	93.1	91.0

Source: Statistics Canada, 2001 Census

The data in table 3 show that the four communities contained in stratum 2 had similar number of people of working-age and similar proportion of Inuit amongst their population aged 15 and over in 2001. Moreover, there were relatively few differences amongst the unemployment rates of these four communities. However, it is almost impossible to find communities or other kinds of regions that are totally alike and this is a limit of stratification. In this case, the data show that Cape Dorset (52.8%) and Pangnirtung (50.9%) had a greater proportion of people aged 15 and over with a job compared to Igloolik (40.3%) and Pond Inlet (43.8%). However, when a community's household samples in stratum 2 were all exhausted and replaced by a sample of households from another community within the same stratum over the last few years, there were no indications that the data were significantly impacted by these changes of community in the sample. When there is a community rotation in the sample, Statistics Canada and the Nunavut Bureau of Statistics examine if there is a significant impact on the data.

Table 4: Comparison of main labour force indicators amongst the communities included in stratum 4, 2001 Census data

	Baker Lake	Arviat
Population 15years and over	920	1,080
Labour force	595	580
Employment	445	470
Unemployment	150	110
Not in labour force	320	500
Participation rate (%)	64.7	53.7
Employment rate (%)	48.4	43.5
Unemployment rate (%)	25.2	19.0
Inuit proportion among the population 15+ (%)	91.8	91.7

Source: Statistics Canada, 2001 Census data

The data in table 4 show that Arviat's working-age population is somewhat bigger than the one in Baker Lake. Both communities have similar proportion of Inuit amongst their population aged 15 and over. However, the 2001 Census data show that there was less activity in Arviat's labour market as a smaller proportion of people were employed or unemployed compared to Baker Lake. Nonetheless, the data around the transition period when there was a community change in the sample, did not indicate that these differences had a significant impact on the estimates.

Additional information on the survey data and concepts

For more definitions on other concepts used in the Labour Force Survey and for a copy of the questionnaire, please refer to the *Guide of the Labour Force Survey* available for free on Statistics Canada's website: http://www.statcan.ca/bsolc/english/bsolc?catno=71-543-G&CHROPG=1.

For information about the Nunavut data in the Labour Force Survey or to request data, please contact the Nunavut Bureau of Statistics at 1-867-473-2653 or at *slanglois@gov.nu.ca*. You can also contact the Client Services at Statistics Canada at 1-866-873-8788 or at *labour@statcan.ca*.

Glossary

Aboriginal identity

Persons who reported identifying with at least one Aboriginal group, i.e., North American Indian, Métis or Inuit. This is based on the individual's own perception of his/her Aboriginal identity, similar to the concept used with the Census. "Aboriginal identity" is not to be confused with "Aboriginal ancestry", another concept measured by the Census, but not by the LFS.

Coefficient of variation

The estimated coefficient of variation for an estimate is simply the ratio of the estimated standard error for that estimate to the estimate itself. This ratio is expressed as a percentage. Estimates having a low coefficient of variation are considered to be stable and reliable because their standard error, which is a measure of how widely estimates can change from sample to sample, are so small in comparison with the estimate itself. Estimates having a high coefficient of variation are considered to be unreliable. Statistics Canada will typically not publish an estimate for which the coefficient of variation is over 33%.

Discouraged job searcher

Discouraged job searchers are defined as those persons who reported wanting to work at a job or business during the reference week and were available but who did not look for work because they believed no suitable work was available.

Dwelling

Any set of living quarters that is structurally separate and has a private entrance outside the building or from a common hall or stairway inside the building.

Educational attainment

Highest level of schooling completed.

Employment

Employed persons are those who, during the reference week:

1) did any work at all at a job or business, that is, paid work in the context of an employer-employee relationship, or self-employment; or

2) had a job but were not at work due to factors such as own illness or disability, personal or family responsibilities, vacation, labour dispute or other reasons (excluding persons on layoff, between casual jobs, and those with a job to start at a future date).

Employment rate

Number of employed persons expressed as a percentage of the population 15 years of age and over. The employment rate for a particular group (for example, Inuit aged 25 years and over) is the number employed in that group expressed as a percentage of the population for that group.

Full-time employment

Persons who usually work 30 hours or more per week at their main or only job.

Goods-producing sector (or goods-producing industries)

Includes agriculture; forestry, fishing, mining, and oil and gas extraction; utilities (electric power, gas and water); construction; and manufacturing.

Household

Any person or group of persons living in a dwelling. A household may consist of any combination of: 1) one person living alone, 2) one or more families, or 3) a group of people who are not related but who share the same dwelling.

Industry

The general nature of the business carried out by the employer for whom the respondent works (main job only). If a person did not have a job during the survey reference week, the information is collected for the last job held, providing the person worked within the previous 12 months.

Labour force

Civilian non-institutional population 15 years of age and over who, during the survey reference week, were employed or unemployed.

Non-response rate

The non-response rate is calculated at the household level. All vacant dwellings (see vacancy rate) are excluded from the calculation. A household is considered to be a non-response if: 1) the occupants refuse to respond, 2) the household is temporarily absent, 3) no one is home at any of the contact attempts, or 4) for some other reason (e.g., language barrier), no response is recorded. The non-response rate is then the percentage of households in the sample which are non-respondents.

Not in the labour force

Persons not in the labour force are those who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets, that is, they were neither employed nor unemployed.

Participation rate

Total labour force expressed as a percentage of the population aged 15 years and over. The participation rate for a particular group (for example, Inuit aged 25 years and over) is the labour force in that group expressed as a percentage of the population for that group.

Part-time employment

Persons who usually work less than 30 hours per week at their main or only job.

Post-secondary certificate or diploma

Completed a certificate (including a trade certificate) or diploma from an educational institution beyond the secondary level (e.g. vocational schools, apprenticeship training, community college, school of nursing, certificates below a Bachelor's degree obtained at a university).

Private sector employee

Those who work as employees of a private firm or business.

Public/private sector employment

The public sector includes employees in public administration at the federal, provincial and municipal levels, as well as in Crown corporations, liquor control boards and other government institutions such as schools (including universities), hospitals and public libraries. The private sector comprises all other employees and self-employed owners of businesses (including unpaid family workers in those businesses), and self-employed persons without businesses.

Public sector employee

Those who work for a local, provincial or federal government, for a government service or agency, a crown corporation, or a government funded public establishment such as a school (including universities) or a hospital.

Reference week

The entire calendar week (from Sunday to Saturday) covered by the Labour Force Survey each month. It is usually the week containing the 15th day of the month. The interviews are conducted during the following week, called the Survey Week, and the labour force status determined is that of the reference week.

Response rate

The response rate is simply the complement of the Non-response Rate:

(Response Rate) = 100% - (Non-response Rate)

Self-employment

Includes working owners of an incorporated business, farm or professional practice, or working owners of an unincorporated business, farm or professional practice. The latter group also includes self-employed workers who do not own a business (such as babysitters and newspaper carriers). Self-employed workers are further subdivided by those with or without paid help. Also included among the self-employed are unpaid family workers. They are persons who work without pay on a farm or in a business or professional practice owned and operated by another family member living in the same dwelling.

Services-producing sector (or services-producing industries)
Includes trade; transportation and warehousing; finance, insurance, real estate and leasing; professional, scientific and technical services; management, administrative and other support; educational services; health care and social assistance; information, culture and recreation; accommodation and food services; other services; and public administration.

Slippage rate

The slippage rate is the percentage difference between: 1) the most recent population estimates from the Census of Population; and 2) the population estimate made from LFS data, without external information. Note that the LFS accounts for coverage error by a process known as calibration, where LFS estimates of totals for age-sex groups are reconciled to the corresponding estimates from the Census of Population. For LFS, net undercoverage, which gives a positive slippage rate, is more common than overcoverage.

Standard error

Different samples can produce different estimates. The standard error is a measure of how widely these estimates can vary from sample to sample. The theoretical standard error is obtained either from: 1) computing the estimates that would result from all possible samples taken from the population or 2) using known statistical properties from the distribution of the estimates of all possible samples. Since neither of the above is usually possible in practice, an estimated standard error is calculated from the sample survey data.

Furthermore, the estimated standard error is combined with assumptions about the underlying distribution of the estimates over all possible samples (the assumptions usually being justified with a powerful set of theorems known as Central Limit Theorems in theoretical statistics) to make confidence statements about how far away the true population value might be from the estimate, e.g., the estimate may be said to be accurate within 2 standard errors with 95% confidence.

Unemployment

Refers to persons who during the reference week were available for work and; 1) were without work and had looked for work in the previous four weeks; 2) had been on temporary lay-off and expected to return to their job; or 3) had definite arrangements to start a new job within the next four weeks.

Unemployment rate (alternative definition - including discouraged job searchers)

Number of unemployed persons and discouraged job searchers expressed as a percentage of the labour force including the discouraged job searchers.

Unemployment rate (official definition)

Number of unemployed persons expressed as a percentage of the labour force. The unemployment rate for a particular group (for example, Inuit aged 25 years and over) is the number unemployed in that group expressed as a percentage of the labour force for that group.

Vacancy rate

The vacancy rate is the ratio (expressed as a percentage) of the number of vacant dwellings over the total number of dwellings in the LFS sample. A dwelling is considered vacant when it is: 1) unoccupied, 2) seasonally vacant, 3) under construction, 4) occupied by individuals who are not eligible for the LFS, or 5) a nonexistent dwelling (dwelling which has been demolished, converted into business premise, moved, abandoned, or listed in error). Please note that the term "Vacancy Rate" takes on a more general definition in the LFS context and as such should not be interpreted as an indicator of the housing market.